TAB 2A

IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF WEST VIRGINIA
AT CHARLESTON

THE CITY OF HUNTINGTON,	:	Civil Action
Plaintiff,	:	No. 3:17-cv-01362
v.	:	
AMERISOURCEBERGEN DRUG CORPORATION, et al.,	:	
Defendants.	:	
CABELL COUNTY COMMISSION,	:	Civil Action
Plaintiff,	:	No. 3:17-cv-01665
v.	:	
AMERISOURCEBERGEN DRUG CORPORATION, et al.,	:	
Defendants.	:	

BENCH TRIAL - VOLUME 30
BEFORE THE HONORABLE DAVID A. FABER, SENIOR STATUS JUDGE
UNITED STATES DISTRICT COURT
IN CHARLESTON, WEST VIRGINIA

JUNE 28, 2021

BY MS. SINGER:

Q. All right. This is Demonstrative 270.

Turning to Slide 2, Dr. Alexander, can you tell us about your educational background?

A. Sure. I attended university, college for two years at Oberlin College in Ohio, and then completed my training at the University of Pennsylvania.

I attended medical school at Case Western Reserve University in Cleveland, and subsequently completed a Master's of Science at the University of Chicago.

Q. All right. And in addition to your employment as a Professor of Epidemiology and Medicine at Johns Hopkins, do you have other affiliations or employment?

A. Yes, I do.

Q. And what are those?

A. Well, I mentioned my role as a Professor of Epidemiology and Medicine at Johns Hopkins. I'm also the founding co-director of the Johns Hopkins Center for Drug Safety and Effectiveness. And I'm Principal Investigator of the Johns Hopkins Center of Excellence in Regulatory Science and Innovation.

I noted that I'm a practicing general internist. And I also am owner and co-founder of a consultancy that's separate and distinct from my role at Johns Hopkins, Monument Analytics.

Q. Dr. Alexander, are you a published author as well as a Professor and other affiliations?

A. Yes, I am.

Q. And did you prepare a slide -- I'm sorry. Before we get to your publications, did you prepare a slide that summarizes your licenses, affiliations, and publications?

A. Yes, I did.

MS. SINGER: Your Honor, may we publish the next slide, please?

BY MS. SINGER:

Q. And, Dr. Alexander, can you describe to the Court your licenses and other affiliations?

A. Of course. I am boarded by the American Board of Internal Medicine, and also have a DEA controlled substance license.

I'm a former Chair and current member of the Food and Drug Administration's Peripheral and Central Nervous System Committee, and a former member of OptumRx's National Pharmacy and Therapeutics Committee.

Q. And I prematurely asked you if you were a published author. Have you -- can you describe your, your publications generally, the number, et cetera?

A. Of course. I've authored or co-authored more than 325 scientific articles, editorials, and book chapters. I'm the current or former editor or deputy editor of nine journals.

And about 50 of my peer-reviewed publications have focused on the opioid epidemic.

Q. Now, are there certain publications related to opioids that you thought would be especially relevant to highlight for the Court?

A. Yes, there are.

Q. And did you prepare a slide to summarize those?

A. Yes, I did.

MS. SINGER: Your Honor, may we publish?

BY MS. SINGER:

Q. And, Dr. Alexander, does this represent that list of selected publications?

A. Yes, it does.

Q. And could you briefly walk the Court through those articles?

A. The first article was published -- the first article entitled "The Opioid Epidemic: From Evidence to Impact --" I should correct myself. This was not a peer-reviewed article but, rather, a report that was published and produced by a large number of faculty and other scientists in 2017 and focused on providing comprehensive evidence-based solutions that could be implemented to address the opioid epidemic.

The second is a peer-reviewed article entitled "The Prescription Opioid and Heroin Crisis: A Public Health

they're insufficient to abate the opioid epidemic.

Q. Now, Dr. Alexander, I think the slide may preview it. But can you describe the categories of intervention that are included in the abatement plan?

A. Yes. In general, the sorts of recommendations that I've suggested fall into one of four categories: Prevention, treatment, recovery, and special populations.

Q. All right. And is that described on the slide that's now appearing on the screen, Number 11, Dr. Alexander?

A. Yes, it is.

Q. So let's start on the plan itself by focusing on I think the first circle which is -- I'm sorry -- the first circle which is the green prevention circle. Can you describe generally the kinds of programs that fit within this bucket?

A. Yes. Prevention focuses on preventing further cases of opioid addiction, as well as helping to ensure that those that have active addiction that aren't yet in treatment don't die before they get access to treatment.

Q. Now, did you prepare a slide that describes the subcategories of interventions within the prevention category?

A. Yes, I did.

Q. And would that slide assist your testimony?

A. Yes.

MS. SINGER: Your Honor, may we publish the next Slide 12, please?

BY MS. SINGER:

Q. And, Dr. Alexander, can you describe briefly the kinds of interventions that fall in each of these categories that you have determined are necessary in Cabell and Huntington?

A. Health professional education refers to special programming for healthcare providers, not just about the over-supply of opioids and about the appropriate treatment of pain, but also about the appropriate identification and management of people with opioid addiction.

Patient and public education is focused on ensuring that patients and the general public understand the evidence, understand the science, that they know that opioids have serious and not uncommon risks, that they know that the evidence for opioids for chronic pain is, is limited. And, so, those educational initiatives are important.

Safe storage and disposal is important because we know that as the volume of opioids in a community increases, as the supply in the community increases, so too does the risk of unsafe storage or failure for drug disposal. So those initiatives are important.

Community prevention and resiliency is important

because this community's fabric has been, has been torn, has been damaged, has been harmed by the opioid epidemic. And, so, community prevention and resiliency programs give the community a central gathering space, a space for educational programming.

Harm reduction is important because not everybody is immediately ready to enter into treatment. And the principles of harm reduction are posited on the idea of meeting people where they were at -- where they are at and ensuring that they, that they have available methods to minimize the risk of overdose.

And surveillance, evaluation, and leadership is important because there has to be a mission control to this plan. Surveillance and evaluation allow for iterative refinement and fine-tuning of the plan over time as the epidemic continues to evolve.

And leadership is important because the governance of this overall plan will be vital. And I think that the community has what it takes.

Q. And, Dr. Alexander, can we focus for a minute on the first category, the health professional education.

Can you describe the kinds of interventions and the doctors with whom -- to whom that education is directed?

A. Yes. Health professional education can take a number of forms, but one of the most important is targeted outreach

to specific prescribers.

So in my plan I suggest identifying prescribers that account for the highest volume of opioid prescribing and to conduct academic -- what's called academic detailing; essentially outreach to these prescribers to provide unbiased, non-commercially influenced sources of information about the optimal management of pain, as well as the identification and treatment of opioid addiction.

Q. And are there certain types of doctors or practices that in addition to the general education would be provided to particular prescribers?

A. Yes. I do think general educational programming is important, again that's not influenced and biased by commercial sources and that provides clinicians with the information they need to provide evidence-based care.

But I also suggest identifying a subset of doctors that may account for a disproportionate volume of opioids on the market and to target them with specific messaging.

Q. And, Dr. Alexander, have you conducted any research specific to high-volume prescribers that informed this recommendation?

A. Yes, I have.

Q. And what generally were your findings?

A. Well, my work and that of many other parties suggest that opioid prescribing is skewed or concentrated so that

A. The treatment category includes services and programs to provide direct treatment for people that have opioid addiction, as well as to treat some of the collateral or downstream harms that have occurred because of addiction such as HIV and Hepatitis C.

Q. And did you prepare a slide that summarizes the elements of the treatment program laid out in your expert report?

A. Yes, I did.

Q. And would that slide assist your testimony?

A. It would.

MS. SINGER: Your Honor, may we publish the next slide?

THE COURT: Yes, you may.

BY MS. SINGER:

Q. Dr. Alexander, is this the slide you prepared to lay out the elements of the treatment plan?

A. Yes, it is.

Q. And can you briefly describe each of those subcategories of intervention?

A. Yes. Well, connecting individuals to care is important because there are gaps in care and you need to reach people at the point when they're most ready to enter treatment and to make it easy for them to do so. So, connecting individuals to care includes programs or services such as

Quick Response Teams or bridge programs that may bridge people from Emergency Departments to treatment settings.

Treatment for Opioid Use Disorder, I think, speaks for itself and there's an enormous need. And this is a highly treatable condition.

Managing complication of Opioid Use Disorder is important for the reasons that we've discussed.

Workforce Expansion and Resiliency is important because, as I already noted, it's not just about being sure that we can maintain Lily's Place, or Project Hope, or the PROACT program at the current levels. We need to hire up and scale up and that will require workforce expansion.

And taking care of the people that are working in these settings. I think that the Court has heard, and it certainly was abundantly clear to me speaking with experts on the ground, the toll that the epidemic has taken on first responders and others who are working and we need to help the helpers.

The last point is about naloxone distribution and training and this is vital because we know that naloxone is highly successful in reversing overdoses and giving people a second shot.

Q. And, Dr. Alexander, why do you include treatment in the abatement plan?

A. Well, treatment works. I mean, if -- and, you know,

treatment -- we have highly safe and effective medicines to treat opioid addiction. With treatment, we can save many lives and help people return to happy, successful, productive lives in society. Without treatment, hundreds and thousands over the years will die.

So, treatment isn't just the right thing to do. It's also -- makes good economic sense. We know that there's a positive return on investment when we invest in the treatment infrastructure. So, there are many reasons to -- to treat Opioid Use Disorder.

We can also disrupt the cycle, the intergenerational cycle of addiction, if we get people into treatment and we'll disrupt and prevent the intergenerational perpetuation of addiction going forward.

Q. And can you explain what you mean by the intergenerational transmission of addiction?

A. Yes. And I recognize that that is a bit of a mouthful. And what I mean is that people that -- families that have addiction -- often, addiction is not just in one generation of the family. Parents may have addiction. There are many, many settings and cases and abundant evidence that having a parent, a household member with Substance Use Disorder, is a significant risk factor for a child to develop Substance Use Disorder.

So, that's -- when I say intergenerational perpetuation

of addiction, what I mean is that this gets passed down not invariably, but not uncommonly from grandparent to parent to child and so on.

Q. Now, I think you talked about the efficacy of addiction treatment. Do many individuals in treatment relapse or drop out?

A. Well, there is relapse from treatment, but there's relapse among individuals with major depression. People with cancer relapse. People with diabetes may be well controlled at one point and their condition may be less well controlled at another. So, relapse is an important feature of Opioid Use Disorder and it's why I suggest the programs that I do, so that we can help to minimize relapse. But relapse isn't a unique feature of this disease alone.

Q. Now, did you prepare a slide to summarize the evidence regarding the efficacy of treatment for Opioid Use Disorder?

A. Yes, I did.

Q. And would that slide help you in testifying today?

A. Yes, it would.

MR. SINGER: Your Honor, may we publish?

BY MS. SINGER:

Q. And, Dr. Alexander, this slide, Treatment Saves Lives, is that the slide you prepared to summarize the evidence regarding the efficacy of Opioid Use Disorder treatment?

A. Yes. It contains what I think is a pivotal and

well-done study that summarizes information from many, many other sources.

Q. And what does that study convey?

A. Well, I think the graph on the right in the slide says it all. It conveys that the likelihood of death among individuals with opioid addiction is significantly, many fold higher, if you're not in treatment than if you are in treatment. And the risk is somewhere in the middle among individuals who have discontinued treatment. So, I think that it shows the significant benefit of treatment in reducing the likelihood of people dying.

Q. And what is the difference in the death rate for people in treatment versus those who aren't in treatment or never receive treatment?

A. So, while in treatment, the death rate in this study was less than one in a hundred person-years. And among those who had never received treatment, the death rate was about five in a hundred person-years. Whereas, among those who had received treatment, the death rate fewer than two per 100 person-years.

Q. And from a public health perspective, is that a meaningful difference?

A. Massive. Massive. I mean, this -- this type of effect, if only we had this type of effect in looking at many other medicines that are approved by the US FDA that

further slide that talks about the evidence for other aspects of your treatment plan?

A. Yes, I did.

Q. And would that slide assist your testimony?

A. Yes, it would.

MS. SINGER: Your Honor, may we publish?

BY MS. SINGER:

Q. Dr. Alexander, is this the slide you prepared laying out some of the evidence for other aspects of the treatment program?

A. Yes, it is.

Q. And can you describe what that evidence consists of?

A. Well, these are just, again, illustrative examples, but emergency department, bridge programs that I referred to that transition people from emergency department straight into treatment can double the chance that an individual with Opioid Use Disorder will receive treatment. Quick Response Teams, which I've noted previously. One in three individuals contacted by Cabell's Quick Response Team after an overdose began treatment. And naloxone, as well. A systemic review of naloxone take-home programs showed it was successful in reversing overdose in 96 percent of cases.

Q. Now, in terms of naloxone, can you describe what is needed in terms of making naloxone more available in Cabell and Huntington?

A. Well, I suggest a number of different means to better distribute naloxone within the community ranging from ensuring that first responders continue to have it and that it's well stocked in emergency departments to providing it to family and loved ones of individuals that are at high risk of overdose, to using public lock boxes similar to defibrillators.

You know, if someone has a heart attack in a mall, or an airport, a movie theater, there is a defibrillator there and it should be no different in a community that's been as devastated and where overdose is as common as Cabell County. It should be no different with respect to the public availability of naloxone.

Q. All right. Dr. Alexander, let's move from here to the third category of interventions in your abatement plan, recovery. What's included generally within the recovery area of your plan?

A. Well, recovery includes a whole host of programs and services that aren't focused on -- directly on treating individuals with active addiction, but nevertheless will allow for those individuals to flourish and for the community as a whole to regain its former livelihood and standing that Cabell County and the City of Huntington historically have had.

Q. And did you prepare a slide that summarized some of the

specific interventions that are included in the abatement plan?

A. Yes, I did.

Q. And would that slide assist your testimony?

A. Yes, it would.

MS. SINGER: Your Honor, may we publish?

BY MS. SINGER:

Q. And, Dr. Alexander, can you describe the subcategories of intervention that make up the recovery plan?

A. Public safety includes a number of different programs and services for law enforcement, such as the development of an overdose response -- I'm sorry. Such as the development of an overdose team or squad which would be able to investigate overdoses and track down the originating sources, for example, of opioids in the community.

Criminal justice system includes ensuring that individuals within the penal system have access to treatment and, as well, supporting programs, for example, to divert individuals from the criminal justice system into the treatment system.

Vocational training and job placement is very important in a place like Huntington and Cabell County because of the degree to which the economy has been decimated and the degree to which individuals with opioid addiction who are in treatment and in recovery are a great source of workforce

that can help the economy to recover.

Reengineering the workplace is important because this is not only valuable to help make the workplace more accommodating with individuals with addiction, but also, to help employers to better manage the workplace and to help local businesses to thrive.

And mental health counseling and grief support, unfortunately, is needed because of the ways -- the mental health impacts of the epidemic. If you consider, you know, children that have been orphaned or simply living with somebody with Substance Use Disorder, or adults that have lost loved ones, there is a lot of -- there is a lot of impact from the epidemic that requires mental health counseling and, in some cases, grief support.

Q. Now, to provide just one example, Dr. Alexander, of the programs that you lay out, can you walk us through what drug court in Cabell County does and why you include it?

A. Well, historically, many individuals that are non-violent; in some cases, first time offenders, non-felonies, with addiction have ended up in the criminal justice system.

Addiction treatment for these individuals offers them an opportunity to get back on their feet and to re-enter the workforce and to have meaningful jobs and return to their families and the like.

So, law enforcement assisted diversion -- I'm sorry. So, drug courts are a separate track within the criminal justice system that allows for individuals that may be non-violent, may be first time offenders, to get treatment instead of ending up incarcerated.

And there are terms and provisions to the participation and such and, I believe in Cabell County and the City of Huntington, there's also been a separate track, the WEAR program for women who are commercial sex workers, many have a history of trauma, violence. And here, too, this is a separate track within the drug court system that allows for them to get treatment for their underlying disease.

Q. And, Dr. Alexander, is there a need, based on your research, and analysis, and report, to expand the services that drug court is able to offer?

A. I believe that there is.

Q. Now, can you explain, and you've touched on this briefly, why job training is part of the abatement plan?

A. It's part of the plan in this community because this community, the local economy has been hurt, was challenged before the epidemic, and the epidemic has taken an additional toll.

Many individuals with opioid addiction, when they enter treatment want and are looking for gainful employment, and job vocational training and job placement allows for them to

get back on their feet. It allows for them to start drawing an income to put food on the table, to help support a family, and it is an important component of successful recovery.

Q. Now, is there evidence to support the efficacy of the recovery programs that you've described and lay out in your report and model?

A. Yes, there's extensive evidence.

Q. And did you prepare a slide that summarizes some of that evidence?

A. Yes, I did.

MS. SINGER: And, Your Honor, may we publish that slide?

THE COURT: Yes, you may.

BY MS. SINGER:

Q. Dr. Alexander, is this slide, Evidence For Recovery Programs, a slide that pulls out some of the evidence supporting the recovery programs you lay out?

A. Yes, it is.

Q. And can you describe what that evidence is?

A. Well, these are illustrative examples, but the slide depicts that 82 percent of Cabell County drug court graduates did not re-offend within 12 months. And also, that in Huntington, LEAD programs, or law enforcement assisted diversion successfully transitioned more than half

of individuals to treatment.

Q. And are those good outcomes from a public health perspective?

A. I think they're very positive.

Q. All right. Let's turn then, Dr. Alexander, to the fourth category of interventions in the abatement plan, special populations. Can you describe, again, at a high level what types of programs or services are included within the special population category?

A. Well, this includes programs and services whether direct treatment -- whether the direct provision of treatment or what are sometimes called wrap-around services, things such as vocational training, or psychological counseling, or the like for special populations, pregnant women, women that have newborns, individuals who, upon re-entry after a period of incarceration, children and families that have been hurt by the epidemic.

Q. Now, and did you prepare a slide, as with the other categories of the plan, that summarize the specific subcategories of programs within that plan?

A. Yes, I did.

Q. And would that assist your testimony?

A. Yes, it would.

MS. SINGER: Your Honor, thank you.

BY MS. SINGER:

Q. And, Dr. Alexander, can you describe the abatement plan addressing special populations?

A. Yes. Well, I've mentioned pregnant women, and new mothers, and infants already.

And, Your Honor, I was also able in my brief break to check and I believe that the 17-plus-or-minus percent of cord blood samples does represent of all women coming in for birth. I believe that all women are treated -- all women are screened for Substance Use Disorder and, if they test positive, then the cords, the umbilical cords, are in turn tested.

And so --

MR. HESTER: Your Honor, may we object? I mean, the witness is doing research during -- during a break and reporting back to the Court on a question. We don't think that's appropriate.

MR. NICHOLAS: I agree.

THE COURT: Sustain the objection, Ms. Singer.

MS. SINGER: I think Dr. Alexander was trying to be helpful to the Court, Your Honor.

THE COURT: I think he was, too, and it's my job to apply the rules even when it means not being real nice, so --

MS. SINGER: Understood.

BY MS. SINGER:

Q. All right. Dr. Alexander, why don't you continue down. I think you were at the first bullet, pregnant women, new mothers, and infants?

A. Of course. So, these programs and services include screening women and ensuring that pregnant women have access to treatment after birth, supporting both the mother and infant, ensuring that infants with Neonatal Abstinence Syndrome have access to the specialized services that they need to have the best shot possible.

There are many adolescents and young adults, far too many, that show up in emergency departments that are not in school when they should be, and so on. And so, my abatement plan includes many specialized programs to address the needs of adolescents and young adults that may have non-medical opioid use or may simply be living in a household that's been impacted by the epidemic.

Families and children, as well, vitally important that the abatement plan addresses. The child welfare system has been heavily taxed because of the toll that the epidemic has played in Cabell County and the City of Huntington.

And so, this includes services both to support children that may be living in households where there's a lot of chaos because of the ongoing addiction, as well as children, for example, that may have a history of Neonatal Abstinence Syndrome in the past and their families.

I've mentioned housing and housing insecurity, as well, and this is also vitally important. It's very hard for someone with addiction to get up on their feet if they -- if they are homeless, if they don't have a secure place to live, if they don't have a roof over their head, and I think that sometimes this can be taken for granted.

And, lastly, opioid misuse. There are many, many individuals that may not have formal addiction that are using these products non-medically. They're at elevated risk of addiction and elevated risk of overdose. And so, this is another special population of interest.

Q. Now, Dr. Alexander, did you prepare a slide that speaks specifically to the impact of the opioid epidemic on children in West Virginia?

A. Yes, I did.

Q. And would that slide assist you in testifying today?

A. Yes, it would.

MS. SINGER: Thank you, Your Honor.

BY MS. SINGER:

Q. And, Dr. Alexander, this slide, Impact on Children in West Virginia, does this summarize some of the facts that you relied upon in reaching your opinion on the interventions for special populations?

A. Yes, it does, and I think the statistics are staggering. You know, 2017, 54 of every one thousand

children in West Virginia were affected by the opioid epidemic. I mean, look at that compared with nationally, 28 out of a thousand children.

In West Virginia, over half of these children are residing in a household without a parent. I'm sorry. In West Virginia, over half of these children resided in a household with a parent that had opioid addiction.

Nearly one in five lost a parent due to death or incarceration. One in five were removed from their home for foster or kinship care.

Of the 22,000 total children affected, it's estimated that 1,500 either developed opioid addiction as an adolescent or accidentally ingested opioids as a child.

And this last statistic is one that's based on my discussion with local experts. Up to half of children in Cabell public schools are being raised by someone other than a parent. I think that these statistics suggest the gravity of the epidemic on children.

Q. And, Dr. Alexander, are these kinds of statistics different than what you have observed nationally or in other jurisdictions?

A. They're strikingly different. Again, in just about every metric it's hard to find a place in the United States that's been impacted as heavily as Cabell County and the City of Huntington.

Q. All right. So, in terms of programs for children, Dr. Alexander, can you speak in greater detail about the kinds of interventions that are needed for teens and adolescents, to just pull out one example?

A. Sure. Well, my discussion with experts from the local school system underscored just how challenged the school system is in managing individuals, adolescents and teens, that may be living in households. They may not be living with their parents. They may be living in households that are -- have a high degree of dysfunction and where there's active addiction.

So, the sorts of programs and services include increasing the volume of social workers and other specialized experts within the school system so that there's a stable and consistent workforce that's able to intervene with these children to advocate on their behalf and, as well, to screen them for their own risk of opioid non-medical use or addiction. And then, to help ensure that they have access to the same high quality treatment that everybody should have access to in the community.

Q. Now, Dr. Alexander, as with the other programs that you lay out, is there evidence that this -- these interventions for women, newborns, teens, adolescents, having secured all of the other categories, are effective?

A. Yes. Again, I suppose you might call it one of the

silver linings of the epidemic, but -- a bit large nationally -- but there has been an immense body of evidence developed evaluating different abatement remedies and there's not exactly the same amount of evidence for one remedy versus another, but the interventions that I propose in my abatement plan are well supported by the scientific and public health evidence.

Q. And specifically, with respect to special populations, did you prepare a slide that laid out or summarized the efficacy of those interventions?

A. Yes, I did.

Q. And would that slide assist you?

A. Yes, it would.

MS. SINGER: Your Honor, may we publish?

BY MS. SINGER:

Q. And, Dr. Alexander, does this slide pull out a couple of examples of the evidence that these kinds of interventions work?

A. Yes. This slide just depicts or, you know, provides illustrative examples again, but one focused on maintaining family relationships and the importance of that and improving the health and socio emotional outcomes for women and children.

And the second from the West Virginia Perinatal Partnership is focused on early -- on pregnant women or

cross examination exhibits that were not previously identified on an exhibit list, but only if they disclose those previously unlisted exhibits that they reasonably and in good faith believe may be used to cross examine a witness by 7:00 p.m. on the day prior to their expected use at trial.

The problem we have, Your Honor, and, quite frankly, if this were one or two exhibits, this probably wouldn't be an issue. We received a set of 50 exhibits last night. They were voluminous. There was no way for us to review them having received them at 10:45 p.m.

The other point I would make with respect to the demonstrative, there is no provision in this stipulation relating to demonstratives. We have been providing defendants copies of our demonstratives the night before when they are ready but, frankly, we have been waiting to get their objections to exhibits because their objections to exhibits sometimes affect what goes in a demonstrative and that's exactly what happened last night.

MR. HESTER: Your Honor, we received the Plaintiffs' exhibit list that -- of documents they plan to use with Dr. Alexander at, I believe, 7:00 last night. And so, by 10:30, we supplemented our exhibit list to include exhibits that were responsive to what had been disclosed to us.

The plaintiffs' exhibit list included a number of documents that were not on Dr. Alexander's reliance list. They were new materials. And we have undertaken to provide these exhibits as quickly as we can. It was three and a half hours after we had the disclosure from the plaintiffs.

THE COURT: Well, let's go forward and see where we get.

MR. ACKERMAN: Okay. We will be objecting to use of those documents if they are -- if they come up.

THE COURT: Well, I will take a look when it comes up.

Mr. Nicholas?

CROSS EXAMINATION

BY MR. NICHOLAS:

Q. Good afternoon, Dr. Alexander. How are you?

A. Fine, thank you.

Q. Good. I hope you're enjoying all of this legal argument back and forth. I don't have very many questions, but I have a few.

And I want to shift over to sort of a new topic, which is the -- the people that are covered, the population that's covered by your proposed abatement plan, and my first question is simply this: Is it correct that the abatement plan that you set forth would provide services and treatment to individuals who never took prescription opioids?

A. Yes, it is.

Q. And do you agree -- I think -- well, I think you will, but do you agree that there are individuals in Cabell County and in the City of Huntington who have OUD who have, in fact, never used a prescription opioid?

A. Yes, I do.

Q. And there are people in Cabell County and in the City of Huntington with HIV who have never used a prescription opioid; isn't that correct?

A. Well, yes, it is, but my estimates of needs for people with HIV are only limited to those that I estimate have HIV as a result of the opioid epidemic.

Q. Fair enough. Would you have the same answer for me with regard to infectious endocarditis and Hepatitis C?

A. Yes, I would.

Q. Okay. Playing this out just a little bit further, if someone never touched a prescription opioid and in the future started using heroin, or fentanyl, or illegal fentanyl, or carfentanil and developed Opioid Use Disorder as a result of that use, treatment for their Opioid Use Disorder would be covered under your plan, correct?

A. Yes. My plan is to abate the opioid epidemic in the community and I don't think that that can be done without -- I think there's one epidemic, not two; an opioid epidemic, not a prescription epidemic and a fentanyl and heroin

epidemic.

Q. I understand. So, your plan would address people whose Opioid Use Disorder was caused by use of -- would be -- would relate back, in your view, to the use of prescription opioids and it would also cover people who simply started on illegal heroin, fentanyl, carfentanil and continued on in that vein, correct?

A. Yes. That latter population representing a small proportion of the entire group of people that use opioids in the community.

Q. And your plan for services and treatment would also include folks who simply misused opioids, correct, misused prescription opioids?

A. Well, non-medical use of prescription opioids is an important dimension of the opioid epidemic. So, the plan would address that.

Q. Understood. And, Dr. Alexander, you are not offering any opinions here today that are specific to any of the three distributor defendants; is that correct?

A. Yes, that's correct.

Q. And your proposed abatement plan does not recommend any changes to the distributors' business practices in any way; is that correct?

A. Well, my abatement plan addresses one of the key drivers of the epidemic, which is the oversupply of

prescription opioids, and you don't get prescription opioids that don't come through the hands of a distributor. You have a manufacturer here and a patient here and every single one of those 40 million prescriptions that I believe entered Cabell County and the City of Huntington passed through the hands of a distributor.

Q. And every one of those however many prescriptions you just referenced passed through the hands of a licensed physician, correct?

A. Well, I would guess that the vast majority did, although there is -- there's the potential for diversion from pharmacies and the like, also.

Q. Okay. But your -- but would you agree with me that the supply of opioids is caused -- that the cause of the supply of opioids is the number of prescriptions that are written?

A. Well, the oversupply of opioids in Cabell County and the City of Huntington is a function of many factors.

Q. All I'm asking you is whether, taking however many factors you want into account, they all trace back to the fact that a licensed physician wrote a prescription?

A. Again, I believe that there is some diversion of -- there's evidence that there's diversion of opioids upstream from prescribers, but there's no question that because of a false assurance that prescribers have had both regarding the safety of opioids, as well as their effectiveness for

Q. Okay. So, I wanted to make sure that the record is clear on what these categories cover.

MR. HESTER: And could we pull that up?

BY MR. HESTER:

Q. I think everybody probably has it. You have it, Dr. Alexander. I hope the Court has it, too, the category listing, but let's just wait a minute.

MR. HESTER: Sorry, Your Honor.

THE COURT: That's all right.

MR. HESTER: This will make it a little easier, I think, for everybody to follow.

BY MR. HESTER:

Q. So, let's go to the first page, please. We need to go back a few tabs. So -- so, Dr. Alexander, so we have this up on the screen so we can all work through this together. So, this -- this front page here is listing all of the categories of your abatement plan, correct?

A. Yes.

Q. And so, you reviewed some of them this morning in your direct examination and I won't spend a lot of time on those, but I do want to make sure we've got a clear record on what all of them entail.

So, the first one under Category 1, which is entitled Prevention-Reducing Opioid Oversupply and Improving Safe Opioid Use, do you see that?

A. Yes, I do.

Q. And the first item there is Category 1-A, Health Professional Education. Do you see that?

A. Yes.

Q. And that's what you discussed this morning, the education of doctors and other prescribers about risks and benefits associated with opioids; is that correct?

A. Well, as well as how to identify and treat Opioid Use Disorder.

Q. Well, the Health Professional Education is focusing particularly on educating doctors and other prescribers, correct?

A. It's focused on educating healthcare providers, but not just about the oversupply of opioids, but also about the identification and treatment of people that have Opioid Use Disorder.

Q. Right. Fair enough. So, but the point is, the focus of this category is on better education to doctors and other prescribers?

A. Yes, healthcare providers that could include nurses and, you know, EMS technicians, and other healthcare providers.

Q. And you're aware that the West Virginia State Board of Medicine engages in continuing medical education, correct?

A. Yes, I am.

Q. And you're aware that one of the continuing medical education programs they provide relates to opioid prescribing and risks and benefits, correct?

A. Yes. I believe that to be the case.

Q. The next item is Category 1-B, Patient and Public Education. Do you see that?

A. Yes.

Q. And that entails a mass media campaign to educate the public about opioid risks and benefits; is that correct?

A. Correct.

Q. And would include a mass media campaign that would use platforms such as TV, radio, billboards, print and social media; is that correct?

A. Yeah. I mean, some combination of those, yeah.

Q. And you're aware that a mass media campaign on opioids has already been implemented across the State of West Virginia, correct?

A. I'm aware that there's been some -- some effort to conduct what are sometimes called social marketing campaigns in this state, yes.

Q. And, in particular, you're aware that the CDC conducted a mass media campaign specifically implemented in the State of West Virginia related to the risks and benefits of opioids?

A. I'm not aware of the details of that.

MR. HESTER: Could I pull up Dr. Alexander's deposition from September 18, 2020?

BY MR. HESTER:

Q. Dr. Alexander, do you remember being deposed in this case in September of last year?

A. Yes, I do.

Q. And you testified under oath; is that correct?

MR. FARRELL: Objection, Your Honor. This appears to be improper refreshing of his recollection. He testified -- his answer was I don't recall. Perhaps if he could be refreshed before being impeached would be the proper procedure.

THE COURT: When did he say he didn't recall? I don't understand.

MR. FARRELL: Maybe I mis-heard him when the question was asked whether or not he testified. His answer was I don't recall.

MR. HESTER: I thought he said he wasn't aware of it.

THE COURT: Overruled. Go ahead.

BY MR. HESTER:

Q. Let me show you, Dr. Alexander, Page 318, Lines 13 to 17, please. And the question was asked, and are you aware that, in 2017, the CDC conducted a mass media campaign -- campaign itself, and it was specifically

implemented in the State of West Virginia? And your answer was, yes, I am. Do you see that?

A. Yes, I do.

Q. And was that a true and accurate statement when you made it in your testimony?

A. Yes. I have no reason to believe otherwise.

Q. Let me ask you to turn now to Category 1. See if we can go back to that summary of categories. Category 1-C is Safe Storage and Drug Disposal. Do you see that?

A. Yes, I do.

Q. And that entails collection sites for unused pills, such as take-back boxes and safe storage practices; is that correct?

A. Yes.

Q. And you're aware that there are multiple pill collection sites in Huntington and Cabell County already, correct?

A. Yes. I mean, I think in each of these domains there may be some element of something that's been done, but -- and I'd be happy to discuss in more detail any of them, but the presence of some intervention to address some aspect or some dimension of one of these problems is a far cry from the abatement plan that I've proposed.

MR. HESTER: Your Honor, I would move to strike as not responsive.

MR. ACKERMAN: And we would oppose, Your Honor.

MR. HESTER: Overruled.

BY MR. HESTER:

Q. But you are aware that there are multiple pill collection sites in Huntington and Cabell County, correct?

A. Yes, I am.

Q. The next item is Category 1-D, which is Community Prevention and Resiliency. Do you see that?

A. Yes.

Q. And that entails coalition building and focuses on promoting community resiliency, correct?

A. Yes.

Q. And you're aware that this is already an ongoing activity in the community to promote resiliency, correct?

A. I'm not aware of the details of the programs, but I would also point to my earlier response in addressing that question.

Q. But you are aware that there are resiliency efforts and community building efforts already underway in Cabell and Huntington, correct?

A. There -- I am aware and, absolutely, my conversations with experts made it more than clear from the experts on the ground that they have worked very hard to try to maintain the fabric of the community.

Q. Let me ask you to point -- to look at the next item,

please, Category 1-E, which is harm reduction, and this entails syringe services programs to provide clean needles for IV drug users, correct?

A. Well, among other things. It also includes naloxone. Naloxone may be featured separately, but harm reduction programs often also include naloxone, as well as fentanyl testing to allow for people to know if their opioids that they may be using contain fentanyl.

Q. Right. Naloxone is culled out separately in your plan, correct?

A. Yes, it is.

Q. Let me -- I just want to focus on this one, though, harm reduction. One piece of the harm reduction category that you are calling for is syringe services programs that would provide clean needles for IV drug users; is that correct?

A. Well, these programs do far more than just give people needles. I mean, they offer people access to care. They screen for sexually transmitted infections. They offer people access to mental health counseling services and the like. But, yes, one of their many services is to provide needle exchange.

Q. And another is fentanyl testing for IV drug users; is that correct?

A. Yes.

Q. And that would allow IV drug users to test for fentanyl and heroin or other drugs that they're injecting, correct?

A. Well, yes, it would be to allow for them -- it may not be that they're injecting. It could be counterfeit pills, as well, that have hurt and killed lots of people. And so, fentanyl testing allows for them to identify products that are contaminated with fentanyl.

Q. So, it would be people who are using illicit drugs testing for whether they have fentanyl, correct?

A. Yes.

Q. Let me ask you to look at Category 1-F, Surveillance, Evaluation and Leadership. Do you see that one?

A. Yes, I do.

Q. And this entails the collection of data on the opioid epidemic; is that right?

A. Among many other things, yes.

Q. And that's already being done in Cabell and Huntington, correct?

A. Again, I would be happy and, at some point, would request to be able to speak in a little bit more full fashion, you know, to provide a more -- a single more comprehensive response to these queries but, yes, some element to evaluation and leadership is currently being provided in Cabell County and the City of Huntington.

Q. And so, for instance, the Division of Addiction

Sciences is playing a role in that, correct?

A. At Marshall University?

Q. Yes.

A. Yes, I believe so.

Q. And Scott Lemley is also involved in those efforts, correct?

A. I would want to refresh my memory regarding the particular names of individuals.

Q. You are aware that the community has established an excellent foundation for data collection and surveillance, correct?

A. Well, I -- I think that there is a strong foundation, but I think there's a lot more work that remains to be done.

Q. Well, let me ask you the question again. Has the community established an excellent foundation for data collection and surveillance?

A. Again, my response would be that the community has a strong foundation and a lot more work needs to be done.

Q. Let me ask you to look at Category 2, please. We'll keep moving through this. This is under your heading for Treatment Supporting Individuals Affected By the Epidemic; is that right?

A. Yes.

Q. And your first item, Category 2-A, is connecting individuals to care. Do you see that?

A. Yes.

Q. And this entails programs to assist people with OUD in getting care and treatment, correct?

A. Yes. And accessing care, yes.

Q. And so, that would include things like help lines that would provide treatment options, transportation for them to get to treatment, and other -- and other services to connect people who have OUD to care, correct?

A. Yes. And -- and maintain their engagement in care. I talked about relapse earlier today. And so, you know, things like peer recovery coaches and other supports that help people to maintain sobriety are important components of this.

Q. And it would be intended for people who have OUD who would need those connections to care, correct?

A. Yeah, although there's no reason that it couldn't also be used by people that were suicidal and thinking about ending their lives because of the trauma that they have experienced with family members that may have active addiction. There's no reason it couldn't be used by people that are using opioids non-medically but don't fulfill formal diagnostic criteria for opioid addiction. So, I guess I view the population that could benefit from this as larger than just the people with outright addiction.

Q. But you have -- in terms of your modeling, you've

modeled this around the OUD population, correct?

A. Yes, I believe that's true.

Q. Let me ask about the next one, Category 2-B, Treating Opioid Use Disorder. This -- I think, you've discussed this before. Just to confirm, this entails the range of treatment options for people with OUD, correct?

A. Yes.

Q. And then, Category 2-C, Managing the Complications Attributable to the Epidemic, this relates to complications relating to IV drug use among people with OUD, correct?

A. Yes.

Q. And then the next one, Category 2-D, Workforce Expansion and Resiliency, this entails expanding the workforce of healthcare professionals needed to treat people with OUD or chronic pain, correct?

A. Yes. So -- or their family members or otherwise to address the epidemic. I mean, again, if you think about the need for social workers in the school system, they're not there necessarily to treat teenagers that have Opioid Use Disorder, although there may be such teenagers, but the workforce expansion is needed beyond the healthcare workforce to treat people with opioid addiction. My point is that this is a much bigger problem than just a problem of addiction alone.

Q. But this category, which is then modeled by Dr. -- or

used by Dr. Barrett to develop costs, this category is focusing on expanding the workforce of healthcare professionals, correct?

A. That's correct.

Q. And it would be healthcare professionals to treat people with OUD or other afflictions, correct?

A. Well, I -- it would be helpful. I mean, there are many pages, as you know, and thousands of cells and inputs to these -- to this model. So, it would be helpful for me to review this if you would like a definitive answer on which specific occupations are in or out of this category.

Q. But the general -- the general category covered by this -- I'm sorry -- the general group of people covered by this, this is to expand healthcare professionals in the workforce, correct?

A. It's to sure up the community workforce, the number of workers in the community that are recruited, and maintained, and taken care of, so that they can help to address the opioid epidemic. And I think that the majority, if not entirety of these, are in the healthcare space.

Q. Let me ask you to look at Category 2-E, Distributing Naloxone and Providing Training. This is one you discussed before, correct? It relates to the distribution of naloxone in the community, correct?

A. Yes, that's right.

Q. And you're aware that the community has already been involved in extensive efforts to distribute naloxone in the community, correct?

A. I'm aware and I've reviewed those programs carefully and I just want to reiterate briefly that the fact that there may be a -- some element of activity in one of these categories doesn't at all speak to whether or not that level of activity is adequate, adequate now, or adequate for the future.

Q. Do you agree, Dr. Alexander, that there has been an extensive use of naloxone in the community?

A. I believe there has and I believe it's saved many lives.

Q. Let me ask you to look at Category 3, please, which is Recovery-Enhancing Public Safety and Reintegration. Do you see that one?

A. Yes, I do.

Q. And under the first one, 3-A, public safety, that focuses on enhancing police capabilities to address drug crime, correct?

A. Yes. That's a topic that -- it was made very clear to me in speaking with individuals on the ground that that was important to them.

Q. So, but it is -- just to be clear on what the category covers, it's expansion of police capabilities, correct?

A. Yes.

Q. Let me ask you to look at Category 3-B, the Criminal Justice System. That entails enhancing the Cabell drug court and other programs in the justice system; is that correct?

A. Yes, including the -- increasing the availability of treatment for addiction within the criminal justice system because a large proportion of individuals with OUD or a significant proportion cycle in and out of the criminal justice system in a given year.

Q. So, an example of that would be the LEAD program, for instance, correct?

A. Yes, or people that are incarcerated and don't have access to FDA approved safe and effective treatment for addiction.

Q. Let me ask you to look at Category 3-C, Vocational Training and Job Placement. Do you see that one?

A. Yes, I do.

Q. And that entails creating employment opportunities for people with OUD, correct?

A. Yes, and supporting employers and the local economy simultaneously.

Q. And then, Category 3-D, Reengineering the Workplace, that entails encouraging workplace opportunities for people with OUD or who are in recovery, correct?

A. Yes. Again, my conversations with experts on the ground underscore the importance of those sorts of initiatives.

Q. Let me ask you to look at Category 3-E, Mental Health Counseling and Grief Support. That entails expanding mental health services and grief support for individuals with OUD, families who have lost people to overdoses, and children affected by the epidemic, correct?

A. Yes, it does.

Q. Category 4 is our last one, Addressing Needs of Special Populations, and I believe you talked about this a little bit. At a high level, these are special populations that are adversely affected by opioid use and misuse and by OUD, correct?

A. Yes.

Q. So, the first one, Category 4-A, Pregnant Women, New Mothers, and Infants, do you see that one?

A. Uh-huh.

Q. And that focuses on pregnant women with OUD and babies born with NAS, correct?

A. Yes.

Q. Category 4-B, Adolescents and Young Adults, that addresses the impact of opioid use, addiction and overdoses on children and adolescents, correct?

A. Yes, including the ripple effects throughout families

and the intergenerational effects that I spoke to briefly earlier.

Q. And then you have one which may be related, Category 4-C, Families and Children. That entails programs to support orphans or other children that are adversely affected by OUD and overdoses, correct?

A. Well, and their families and loved ones.

Q. And you're aware that the State of West Virginia runs foster care and adoption services, correct?

A. I don't recall with certainty, but that sounds right to me.

Q. Let me ask you to look at Category 4-D, Homeless and Housing Insecure. Do you see that one?

A. Yes.

Q. And that focuses on individuals with OUD who are homeless or housing insecure, correct?

A. Yes, and it's vitally important. I was shocked at the rate of homelessness and housing insecurity among individuals with, in this instance, intravenous opioid use in the community. The numbers were quite surprising to me and very high.

Q. And then, Category 4-E, Individuals With Opioid Misuse, do you see that one?

A. Yes.

Q. And I believe you talked about this before, but that

focuses on individuals who misuse opioids, including heroin, or fentanyl, or prescription opioids who do not yet have OUD, correct?

A. Yes. I mean, I think most of what I've discussed in my expert report and would focus on is individuals with non-medical prescription opioid use, but -- but there may be individuals that use heroin or illicit fentanyl but don't fulfill formal diagnostic criteria for addiction.

Q. Dr. -- I'm sorry -- Mr. Barrett is going to take these categories and develop a total cost number, correct?

A. I don't know the details of what Mr. Barrett will do, but that's my general understanding.

Q. You've never talked to Mr. Barrett about what he does with what you've developed?

A. I have had -- I believe I've had a conversation or two with him and my understanding is that he's to develop a total cost estimate based on what I've proposed, but I don't -- I don't know the details of his methodology or approach.

Q. Let me ask you to turn to a new topic, please. I'd like to talk about the OUD population that you've discussed previously. Just to confirm, you start with an estimate of the OUD population in Cabell and Huntington from 2018; is that correct?

A. Yes.

Q. And that -- that number, that 2018 OUD estimate, was

developed by Dr. Katherine Keyes; is that right?

A. Yes, that's correct.

Q. And so, in other words, when Dr. Keyes provides that OUD estimate for 2018, those are people who have OUD as of 2018, correct?

A. I believe that's the case.

Q. Is so, in other words, it would include people who use opioids such as heroin, or fentanyl, or misused prescription opioids and then developed OUD at sometime in the past, 2018 or previously, correct?

A. Well, I believe it's an estimate of individuals with active Opioid Use Disorder in the community as of 2018.

Q. So, maybe I'm just misstating almost a truism. I think you used the word tautology before, but the truism that you -- these are people who had used opioids in the past and had developed OUD and active OUD as of 2018, correct?

A. Yes.

Q. And then -- so, your starting population is, therefore, based on the assumptions that Dr. Keyes applied in developing her OUD population of 8,252 people, correct?

A. Well, it's not just -- it's not as if she just handed off a number to me. I mean, I -- at the time that she was developing her estimates, I reviewed them and I reviewed her methodology and my team independently considered a number of alternative approaches. And I triangulated those with her.

And I had confidence at the time that her approach was methodologically sound.

Q. Is there anyplace in your report where you say you triangulated and tested what Dr. Keyes did in developing her OUD numbers? Is that stated anywhere in your report?

A. I don't recall the details of what I've stated in my report, but I -- I don't recall that specific statement, no.

Q. It's not stated in your report, is it?

MR. ACKERMAN: Objection, asked and answered.

MR. HESTER: I don't think so.

THE COURT: Overruled.

Can you answer the question?

THE WITNESS: It would be helpful to review my report. I mean, my report is, I don't know, 40, 60, 80 pages. I don't know sitting here whether or not -- to what degree I spoke to the -- to my having vetted Dr. Keyes' estimate.

MR. HESTER: Let me give you your report.

MR. FARRELL: Judge, to hopefully save some time with the review, can I make an objection on relevance? I fail to see why it's relevant whether or not an answer elicited on cross examination is contained within his expert witness report.

MR. HESTER: Well, Your Honor, I think it's a quite important point because the witness had never

previously said that he had undertaken any check of what Dr. Keyes did. He had previously, as I understood it, testified that he was relying on what Dr. Keyes gave him.

THE COURT: And you're going to refresh him with it?

MR. HESTER: Yes. I thought I would refresh him. May I approach, Your Honor?

THE COURT: Yes. If you saw your report, do you think you would remember?

THE WITNESS: Well, I would want to review it and I'm sensitive to your time, Your Honor, and everybody else's. I think the key thing to say here is that -- that I did speak with Dr. Keyes, that at the time that she was developing her estimates, I agreed with her approach and that -- and that I -- but I didn't do an -- you know, and that I and my team considered a number of different ways of estimating the population in the county and, ultimately, I used the approach that Dr. Keyes pursued.

MR. HESTER: I think that solves my problem, Your Honor.

THE COURT: I think it does, too.

BY MR. HESTER:

Q. But you did rely to start on the number that Dr. Keyes gave you, correct?

A. Well, yes. I used it in my report, so in that sense,

yes, I did. I did use her estimate in my report.

Q. And so, if the estimate provided by Dr. Keyes of the starting OUD population is too high, then the population numbers in your redress model would also be too high, correct?

A. Yes. And if those numbers are too low, then the population numbers would be too low. I mean, there is a possibility of either, but the point is that I and my team carefully reviewed different methods of estimating the population and the county and ultimately -- and that included reviewing with Dr. Keyes her approach and, ultimately, I'm confident that the approach that was used was a valid approach that reflects the practices of epidemiology.

Q. But it -- but let me just confirm my point though. If the number from Dr. Keyes is too high, then the OUD numbers on which you rely in the redress model are also too high, correct?

MR. ACKERMAN: Objection. Asked and answered.

THE COURT: Overruled.

THE WITNESS: If they're too high, then the numbers I relied upon are too high. And if they're too low, then the numbers that I relied upon are too low.

BY MR. HESTER:

Q. And under your model, the starting OUD population from

Dr. Keyes does not remain constant over the 15 years, correct?

A. That's correct.

Q. And some people leave the OUD population, perhaps from overdose, perhaps from some completely unrelated cause of death, perhaps they move away from Cabell Huntington, correct? But it's not going to be a static population over time, correct?

A. Yes. It's a dynamic population.

Q. And you also assume that there are new people who develop OUD over the 15-year period covered by your redress model in addition to your starting population, correct?

A. Yes.

Q. And just to be clear on the -- on the numbers, Dr. Keyes gave a number of 8,225 people. The first year in your redress model is 7,882. That's the start of the scaling down of the OUD population, correct?

A. Correct.

Q. But you're assuming that new people will develop OUD during the 15-year period and that starting population in your redress model of 7,882 does not stay static, correct?

A. Well, the individual people are not necessarily the same people. I mean, there are people, just like if you looked at all smokers today and took everybody with lung cancer, there's a group that has lung cancer now and there's

a group that's going to develop lung cancer in three or five years.

So, if I was addressing the lung cancer problem, I would want to design policies that account for the fact that some people will develop lung cancer in the future.

The analogy here is, as one example, there are individuals on chronic high dose prescription opioids now that may not yet have developed opioid addiction, but will by 2024. So, my plan accounts for that.

Q. And let's just make this concrete.

MR. HESTER: If we could put up Tab 2-B of the -- of Dr. Alexander's redress model. It's the model itself, Chris.

BY MR. HESTER:

Q. And if you can go to Tab 2-B, Dr. Alexander, this is not meant to be an eye test, but here's this -- this top line is the OUD population over time, correct?

A. Yes.

Q. And so, your point is that there's some people in that OUD population who come in and out and you're going to have new people coming into that top line population, correct?

A. Yes.

Q. And that might include -- just as an example, that could include a child who is ten years old as of 2021 and has never used opioids begins abusing heroin in 2027 as a

teenager and develops OUD. That -- that child would be included in your OUD numbers, correct?

A. It would, as would someone who is living a happy, healthy life in recovery now in treatment from prescription Opioid Use Disorder who relapses. So, there are any number of scenarios that might land someone in need of treatment in 2024.

Q. So -- so, maybe to go to the generality of the point, you can have people who newly develop OUD in the future for all sorts of reasons and who join the population, you could also have people who drop out of the population, and the top line that we're showing there in the model is the net of those two, correct?

A. It is. There's one opioid epidemic. I mean, there's a lot of dynamics of different directions that people may develop harms and experience harms and, you know, move towards recovery and then backslide, but it's one opioid epidemic. And so, my plan addresses that.

Q. Now, I'm trying to just nail down the methodology and the methodology is when we look at this top line, when we look at the OUD population in your redress model, what we're looking at is a net of people who go out of the OUD population and new people who come in, correct?

A. Yes.

Q. And in other settings you have looked at or projected

the population of individuals who would newly be joining the OUD population, but you were not asked to do so here, correct?

A. Yes, that's correct.

Q. So, you've not estimated how many people would develop OUD each year during the period covered by your model, correct?

A. Right. I've not -- I've not estimated the proportions that are developing opioid addiction anew in each subsequent year.

Q. So, let's again go back and if I could look at 2035. If we look at this number for 2035 of an OUD population of 4,143, we don't know how many people in that population newly developed OUD during the 15 years, as compared to having OUD as of 2018? We don't know that, correct?

A. Well, it's a number that could be derived, but I, sitting here today, could not provide you with such a number.

Q. And you were not asked to do that in this case, correct?

A. Correct.

Q. So, there's no way to separate out the group that has newly developed OUD after 2021, as compared to the group that had OUD as of 2021? That hasn't been done in this case?

A. It hasn't because I focused on abating the overall opioid epidemic and, for that purpose, such a separation or sort of distinction of one population versus another is -- is, in some sense, immaterial. It's not necessary from a public health and public policy perspective.

Q. I'm not trying to be very cosmic. I'm being pretty narrow on the methodology. And in terms of the methodology, you have not separated out in any of these years the people who have newly developed OUD during the 15-year period as contrasted with the people who had OUD at the start of the 15 years? You have not done that, correct?

A. Yes, correct.

Q. So, we've been looking quite a bit at this -- at this line for the treatment population, but other aspects of your plan also assume that people will use opioids and develop OUD in the future, correct?

A. Can you be more specific, please?

Q. Sure. Let me try. So, one of the categories in your plan is 4-A, for pregnant women, new mothers and infants. And so, that is covering infants who develop NAS during gestation, correct?

A. Well, it's covering pregnant mothers and the infants.

Q. Right.

A. But the children would -- yes, the children would be -- the neonates would be infants that are born impacted by

Neonatal Abstinence Syndrome.

Q. So, that could well include a baby who was born to a mother who didn't have OUD as of 2018 or 2021, but begins using opioids at some later time, delivers a baby, and that baby has NAS, correct?

A. Yes, it could. I mean, I think that mother and that baby are just as entitled to services and treatment as any other. And so, what I've focused on is developing a plan that would allow for them to be treated such that, in 15 years, we could have the amount of harms occurring in the community.

Q. But I'm not debating the merits. I'm just trying to understand the method. And the method includes mothers who develop OUD later, after 2021, and who give birth to a baby after 2021 and the mother and that baby are both treated within this plan even though the mother did not have OUD as of 2021, correct?

A. Yes.

Q. And you don't know what percentage of the NAS babies or the mothers encompassed within that part of your plan are -- will be born to mothers who have OUD as of 2021 as compared to mothers who develop OUD later? You just haven't -- you haven't done that analysis, correct?

A. Well, I don't know if I've done the analysis, but I've not done it and submitted it as part of my report for this

case.

Q. Your plan also provides for early intervention, special education and psychosocial treatment for children going forward after they're born with NAS, correct?

A. Yes.

Q. And, again, so that could include a child born to a mother who does not have OUD today, but develops it at some later time from using opioids, correct?

A. Yes. I mean, you know, my -- my discussions with experts on the ground and my review of the materials suggests that there is no shortage of people that are currently in need of services within the community, but you're correct that I didn't net out or try to disaggregate rather, you know, looking forward nine years from now, what proportion of people nine years from now have opioid addiction that developed after, you know, June, 2021.

Q. So, let's go -- let's go back to the treatment section of your report, Tab 2-B, and you discussed on your direct examination that you're starting with a population of 7,882. That's the OUD population, correct?

A. Yes.

Q. And then, you're assuming -- and you discussed this this morning. You're assuming that 40 percent of them receive treatment for OUD in that first year, correct?

A. Yes.